SEQUENCE LISTING

<110> E.I. duPont de Nemours and Company, Inc.
Meyer, Knut
Viitanen, Paul
Van Dyk, Drew E.

<120> High Level Production of P-Hydroxybenzoic Acid in Green Plants

<130> BC1015 US DIV

<140> US 10/718,311
<141> 2003-11-20

<160> 18

<170> PatentIn version 3.4

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cagcagggaa aaacggtaag cgtgacgatg atccgcgaag ggtttgtcga gcagaatgaa 180

atccccgaag aactgccgct gctgccgaaa gagtctcgtt actggttacg tgaaattttg 240

ttatgtgccg atggtgaacc gtggcttgcc ggtcgtaccg tcgttcctgt gtcaacgtta 300

agcgggccgg agctggcgtt acaaaaattg ggtaaaacgc cgttaggacg ctatctgttc 360

acatcatcga cattaacccg ggactttatt gagataggcc gtgatgccgg gctgtggggg 420

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gcgtcaccgt tgtac 495

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Glu Ile Pro Ala Leu Asp Pro Gln Leu Leu Asp Trp Leu Leu Leu Glu
20 25 30

Asp Ser Met Thr Lys Arg Phe Glu Gln Gln Gly Lys Thr Val Ser Val
35 40 45

Thr Met Ile Arg Glu Gly Phe Val Glu Gln Asn Glu Ile Pro Glu Glu
50 55 60

Leu Pro Leu Leu Pro Lys Glu Ser Arg Tyr Trp Leu Arg Glu Ile Leu
65 70 75 80

Leu Cys Ala Asp Gly Glu Pro Trp Leu Ala Gly Arg Thr Val Val Pro
85 90 95

Val Ser Thr Leu Ser Gly Pro Glu Leu Ala Leu Gln Lys Leu Gly Lys
100 105 110

Thr Pro Leu Gly Arg Tyr Leu Phe Thr Ser Ser Thr Leu Thr Arg Asp
115 120 125

Phe Ile Glu Ile Gly Arg Asp Ala Gly Leu Trp Gly Arg Arg Ser Arg
130 135 140

Leu Arg Leu Ser Gly Lys Pro Leu Leu Leu Thr Glu Leu Phe Leu Pro
145 150 155 160

Ala Ser Pro Leu Tyr
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<210> 5
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<223> Chimeric gene encoding chloroplast-targeted CPL fusion protein

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caaaaccttg acatcacttc cattgctagc aatggtggaa gagttagctg catgcaggtg 180

tggcatatgt cacaccccgc gttaacgcaa ctgcgtgcgc tgcgctattg taaagagatc 240

cctgccctgg atccgcaact gctcgactgg ctgttgctgg aggattccat gacaaaacgt 300

tttgaacagc agggaaaaac ggtaagcgtg acgatgatcc gcgaagggtt tgtcgagcag 360

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acgttaagcg ggccggagct ggcgttacaa aaattgggta aaacgccgtt aggacgctat 540

ctgttcacat catcgacatt aacccgggac tttattgaga taggccgtga tgccgggctg 600

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            20                  25                  30

Ala Thr Phe Pro Val Thr Lys Lys Gln Asn Leu Asp Ile Thr Ser Ile
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Ala Ser Asn Gly Gly Arg Val Ser Cys Met Gln Val Trp His Met Ser
    50                  55                  60

His Pro Ala Leu Thr Gln Leu Arg Ala Leu Arg Tyr Cys Lys Glu Ile
65                  70                  75                  80

Pro Ala Leu Asp Pro Gln Leu Leu Asp Trp Leu Leu Leu Glu Asp Ser
                85                  90                  95

Met Thr Lys Arg Phe Glu Gln Gln Gly Lys Thr Val Ser Val Thr Met
            100                 105                 110

Ile Arg Glu Gly Phe Val Glu Gln Asn Glu Ile Pro Glu Glu Leu Pro
        115                 120                 125

Leu Leu Pro Lys Glu Ser Arg Tyr Trp Leu Arg Glu Ile Leu Leu Cys
    130                 135                 140

Ala Asp Gly Glu Pro Trp Leu Ala Gly Arg Thr Val Val Pro Val Ser
145                 150                 155                 160

Thr Leu Ser Gly Pro Glu Leu Ala Leu Gln Lys Leu Gly Lys Thr Pro
                165                 170                 175

Leu Gly Arg Tyr Leu Phe Thr Ser Ser Thr Leu Thr Arg Asp Phe Ile
            180                 185                 190

Glu Ile Gly Arg Asp Ala Gly Leu Trp Gly Arg Arg Ser Arg Leu Arg
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Leu Ser Gly Lys Pro Leu Leu Leu Thr Glu Leu Phe Leu Pro Ala Ser
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Pro Leu Tyr
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<210> 11
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<210> 14
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<212> DNA
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<211> 62
<212> PRT
<213> artificial sequence

<220>
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Met Ala Ser Ser Val Ile Ser Ser Ala Ala Val Ala Thr Arg Ser Asn
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Val Thr Gln Ala Ser Met Val Ala Pro Phe Thr Gly Leu Lys Ser Ser
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Ala Thr Phe Pro Val Thr Lys Lys Gln Asn Leu Asp Ile Thr Ser Ile
35 40 45

Ala Ser Asn Gly Gly Arg Val Ser Cys Met Gln Val Trp His
50 55 60

<210> 16
<211> 170
<212> PRT
<213> artificial sequence

<220>
<223> Processed chloroplast-targeted CPL synthetic fusion protein

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Leu Arg Tyr Cys Lys Glu Ile Pro Ala Leu Asp Pro Gln Leu Leu Asp
20 25 30

Trp Leu Leu Leu Glu Asp Ser Met Thr Lys Arg Phe Glu Gln Gln Gly
35 40 45

Lys Thr Val Ser Val Thr Met Ile Arg Glu Gly Phe Val Glu Gln Asn
50 55 60

Glu Ile Pro Glu Glu Leu Pro Leu Leu Pro Lys Glu Ser Arg Tyr Trp
65 70 75 80

Leu Arg Glu Ile Leu Leu Cys Ala Asp Gly Glu Pro Trp Leu Ala Gly
85 90 95

Arg Thr Val Val Pro Val Ser Thr Leu Ser Gly Pro Glu Leu Ala Leu
100 105 110

Gln Lys Leu Gly Lys Thr Pro Leu Gly Arg Tyr Leu Phe Thr Ser Ser
115 120 125

Thr Leu Thr Arg Asp Phe Ile Glu Ile Gly Arg Asp Ala Gly Leu Trp
130 135 140

Gly Arg Arg Ser Arg Leu Arg Leu Ser Gly Lys Pro Leu Leu Leu Thr
145 150 155 160

Glu Leu Phe Leu Pro Ala Ser Pro Leu Tyr
165 170

<210> 17
<211> 180
<212> PRT
<213> Solanum lycopersicum

<400> 17

Met Ala Ser Ser Val Ile Ser Ser Ala Ala Val Ala Thr Arg Ser Asn
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Val Thr Gln Ala Ser Met Val Ala Pro Phe Thr Gly Leu Lys Ser Ser
20 25 30

Ala Thr Phe Pro Val Thr Lys Lys Gln Asn Leu Asp Ile Thr Ser Ile
35 40 45

Ala Ser Asn Gly Gly Arg Val Ser Cys Met Gln Val Trp Pro Pro Ile
50 55 60

Asn Met Lys Lys Tyr Glu Thr Leu Ser Tyr Leu Pro Asp Leu Ser Asp
65 70 75 80

Glu Gln Leu Leu Ser Glu Ile Glu Tyr Leu Leu Lys Asn Gly Trp Val
85 90 95

Pro Cys Leu Glu Phe Glu Thr Glu His Gly Phe Val Tyr Arg Glu Asn
100 105 110

Asn Lys Ser Pro Gly Tyr Tyr Asp Gly Ser Thr Gly Pro Cys Gly Ser
115 120 125

Cys Leu Cys Leu Gly Ala Leu Met Gln Pro Lys Cys Trp Leu Arg Phe
130 135 140

Lys Arg Leu Lys Arg His Thr His Lys His Gly Ser Glu Ser Leu Asp
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Ser Thr Met Cys Val Lys Cys Ser Val Ser Val Ser Leu Pro Thr Ser
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Gln Lys Ala Thr
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<210> 18
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<212> PRT
<213> Artificial sequence

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<223> TP-UbiC synthetic fusion protein

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Val Thr Gln Ala Ser Met Val Ala Pro Phe Thr Gly Leu Lys Ser Ser
20 25 30

Ala Thr Phe Pro Val Thr Lys Lys Gln Asn Leu Asp Ile Thr Ser Ile
35 40 45

Ala Ser Asn Gly Gly Arg Val Ser Cys Ala Val Pro Cys Asn Gly Glu
50 55 60

Phe Gly Met Ser His Pro Ala Leu Thr Gln Leu Arg Ala Leu Arg Tyr
65 70 75 80

Cys Lys Glu Ile Pro Ala Leu Asp Pro Gln Leu Leu Asp Trp Leu Leu
85 90 95

Leu Glu Asp Ser Met Thr Lys Arg Phe Glu Gln Gln Gly Lys Thr Val
100 105 110

Ser Val Thr Met Ile Arg Glu Gly Phe Val Glu Gln Asn Glu Ile Pro
115 120 125

Glu Glu Leu Pro Leu Leu Pro Lys Glu Ser Arg Tyr Trp Leu Arg Glu
130 135 140

Ile Leu Leu Cys Ala Asp Gly Glu Pro Trp Leu Ala Gly Arg Thr Val
145 150 155 160

Val Pro Val Ser Thr Leu Ser Gly Pro Glu Leu Ala Leu Gln Lys Leu

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                165                 170                 175

Gly Lys Thr Pro Leu Gly Arg Tyr Leu Phe Thr Ser Ser Thr Leu Thr
            180                 185                 190

Arg Asp Phe Ile Glu Ile Gly Arg Asp Ala Gly Leu Trp Gly Arg Arg
        195                 200                 205

Ser Arg Leu Arg Leu Ser Gly Lys Pro Leu Leu Leu Thr Glu Leu Phe
    210                 215                 220

Leu Pro Ala Ser Pro Leu Tyr
225                 230
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